valentin
ETIKETTENDRUCKSYSTEME

English

Service manual

Thermal Transfer Printer
Optimo type

79.66.075 • November 2000

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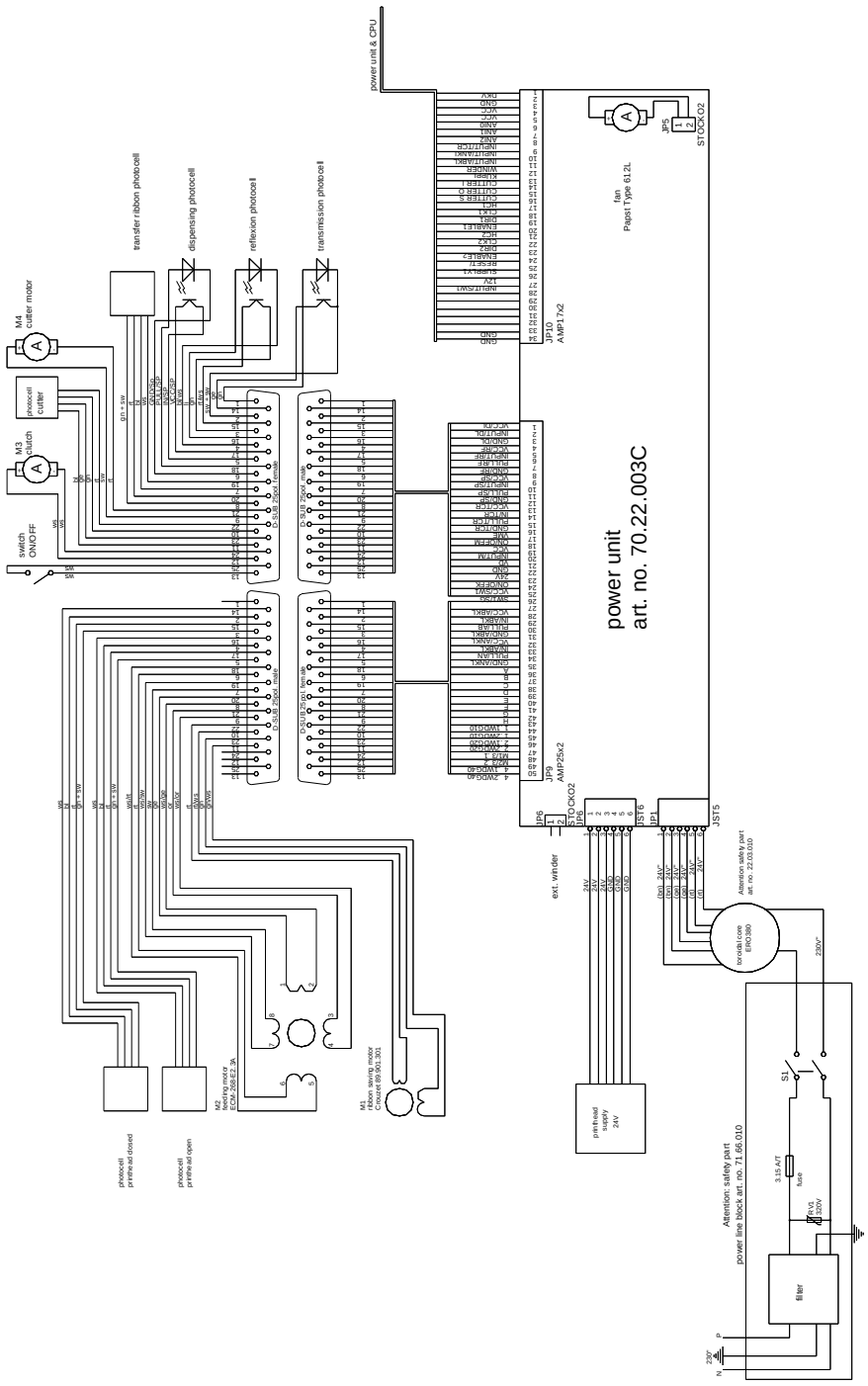
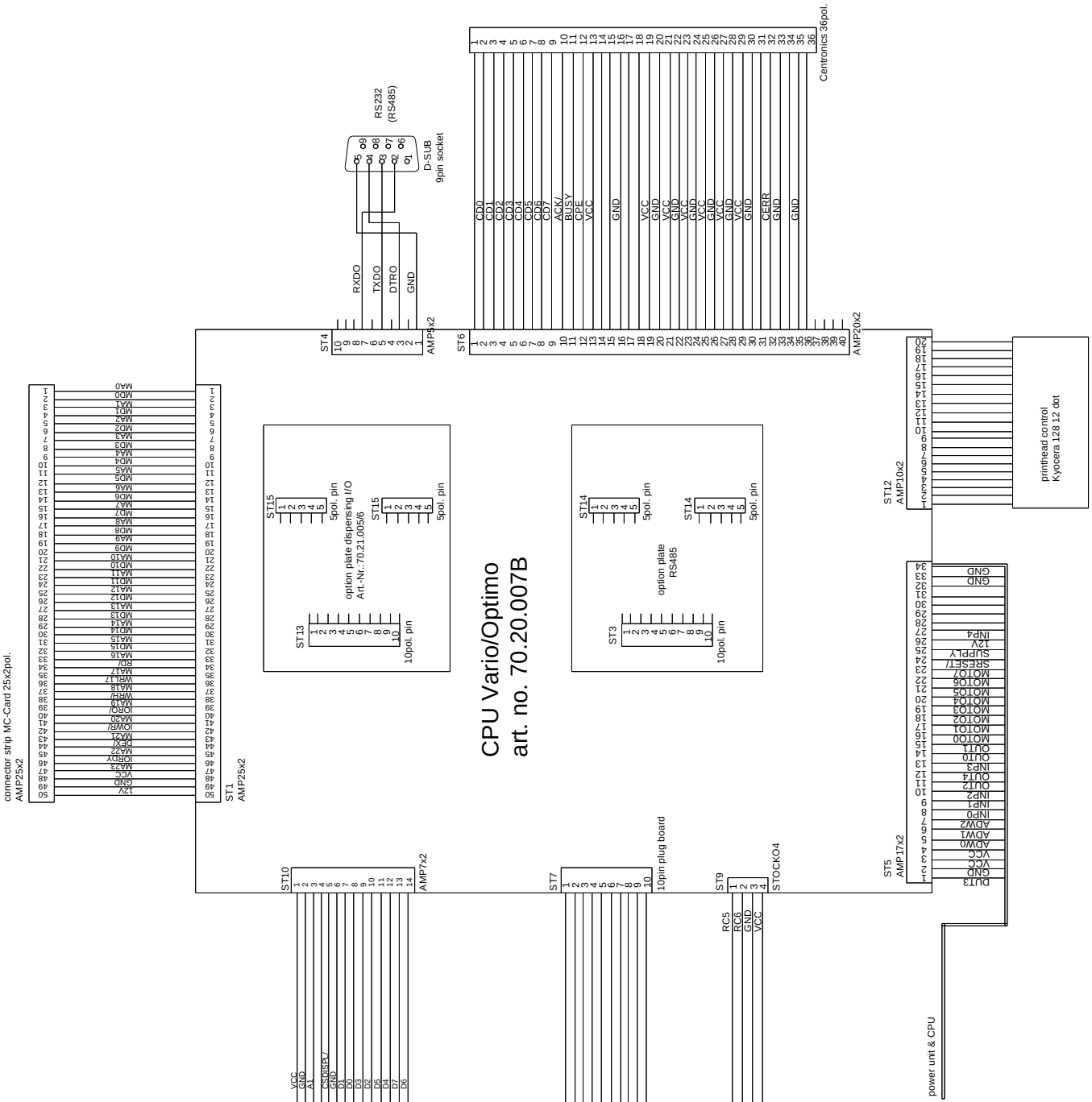
1. Electronics

1.1. Wiring diagrams

1.1.1. Wiring diagram power unit



1.1.2. Wiring diagram CPU



1.1.3. Wiring diagram plug 1

(25 pin female connector)

power unit JP9	SUB D 25 pin socket	photocell transm. cable l.__mm insul. l.__mm	photocell reflexion cable l.__mm insul. l.__mm	photocell dispensing cable l.__mm insul. l.__mm	photocell transf. rib. cable l.__mm insul. l.__mm	cutter cpl. cable l.__mm insul. l.__mm	clutch cable l.__mm insul. l.__mm	switch ON/OFF cable l.__mm insul. l.__mm
1	1	VCC green						
2	14	IN yellow						
3	2							
4	15	VCC	brown					
5	3	IN	white					
6	16	Pull-UP	pink					
7	4	GND	green					
8	17		VCC	yellow				
9	5		IN	green				
10	18		Pull-Up	black				
11	6		GND	blue				
12	19	white	connection with shield cable for print module		white			
13	7	green			blue			
14	20	yellow			pink			
15	8	brown			green+black			
16	21					red (c)		
17	9					black (c)		
18	22					red (pc)		
19	10					green (pc)		
20	23					yellow (pc)		
21	11					blue (pc)		
22	24	white	connection with shield cable for print module				white	
23	12	brown					white	
24	25							white
25	13							white

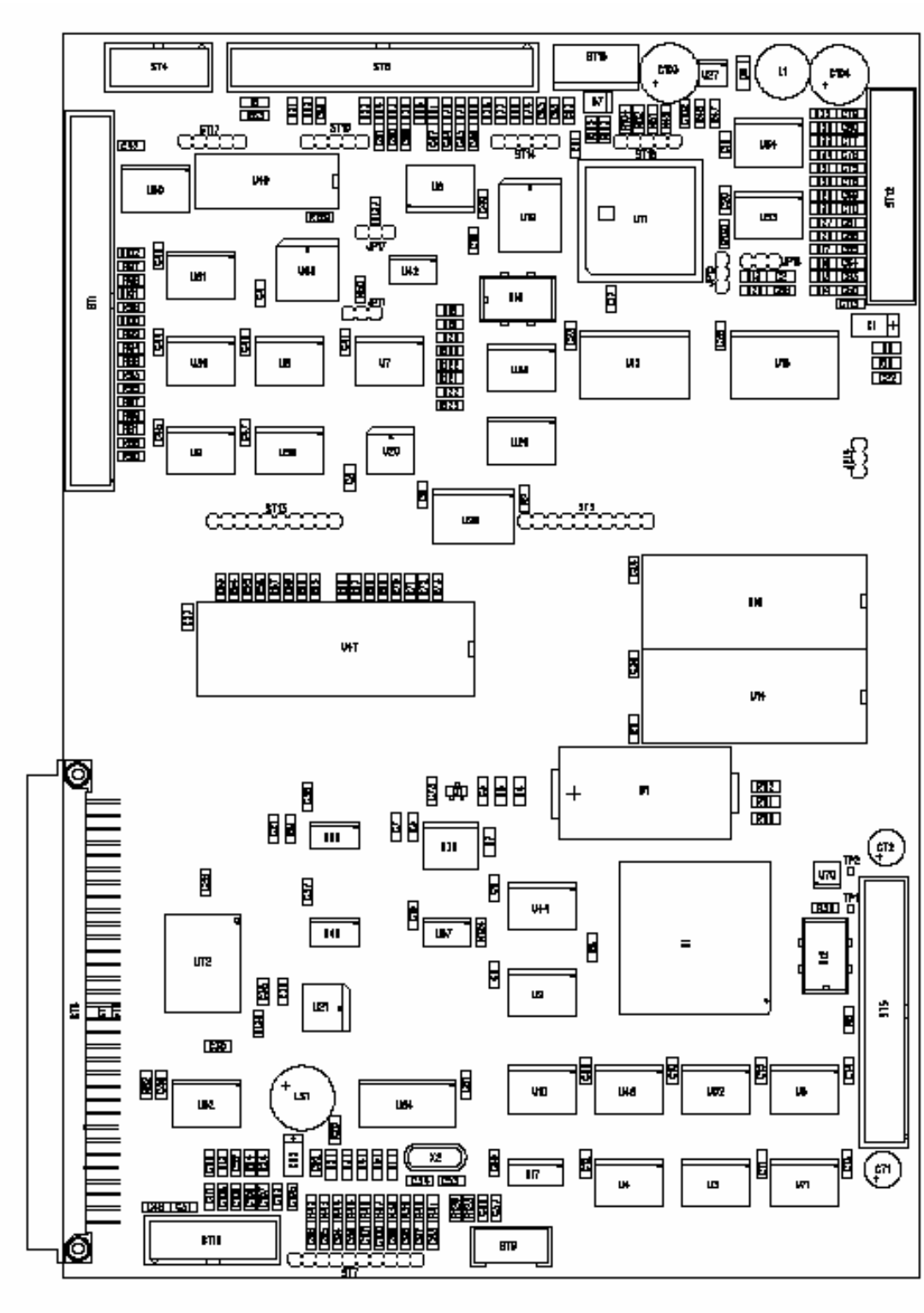
c = cutter
pc = photocell

1.1.4. Wiring diagram plug 2

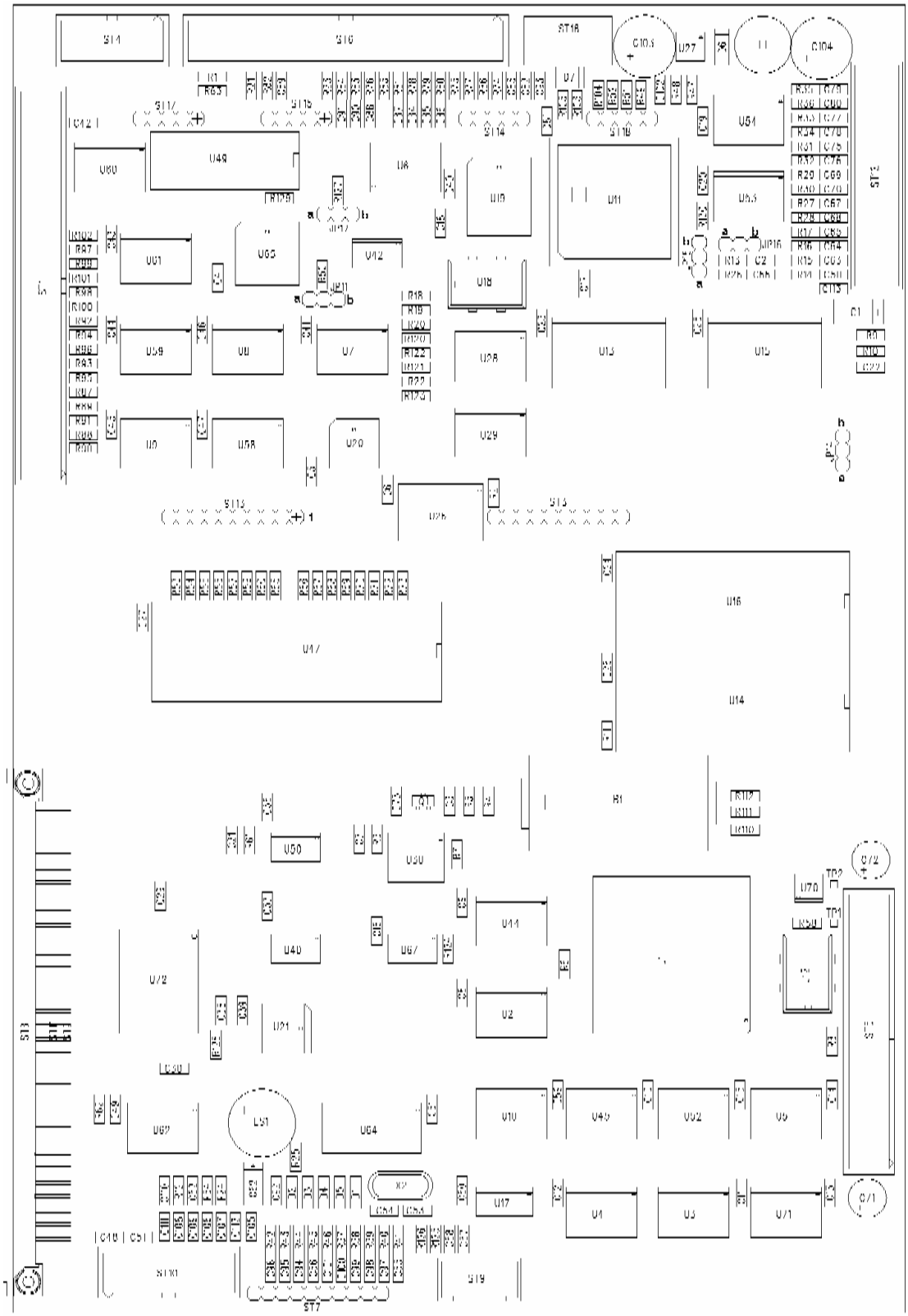
(25 pin connector)

power unit JP9 AMP 50 pin	**SUB D 25 pin connector**	**photocell printhead closed (down)** cable length: 430 mm insul. tube: 390 mm	**photocell printhead open (up)** cable length: 430 mm insul. tube: 390 mm	**motor paper feed EC motion** ECM-268-E2.3A cable length: 380 mm insul. tube: 340 mm	**Ribbon saving motor** Crouzet 89.908.301 cable length: 330 mm insul. tube: 290 mm
26	1				
27	14	white			
28	2	blue			
29	15	red			
30	3	green + black			
31	16	white	connect. w. shield cable f. print module	white	
32	4	green		blue	
33	17	yellow		red	
34	5	brown		green+black	
35	18	white	connection with shield cable for print module	white/red	
36	6	brown		red	
37	19	green		white/black	
38	7	yellow		black	
39	20			yellow	
40	8			white/yellow	
41	21			orange	
42	9			white/orange	
43	22	brown	connection with shield cable for print module		red
44	10	yellow			red/white
45	23	green			green
46	11	white			green/white
47	24				
48	12				
49	25				
50	13				

1.2. Component parts of CPU (Revision 0)



1.3. Component parts of CPU (Revision A)



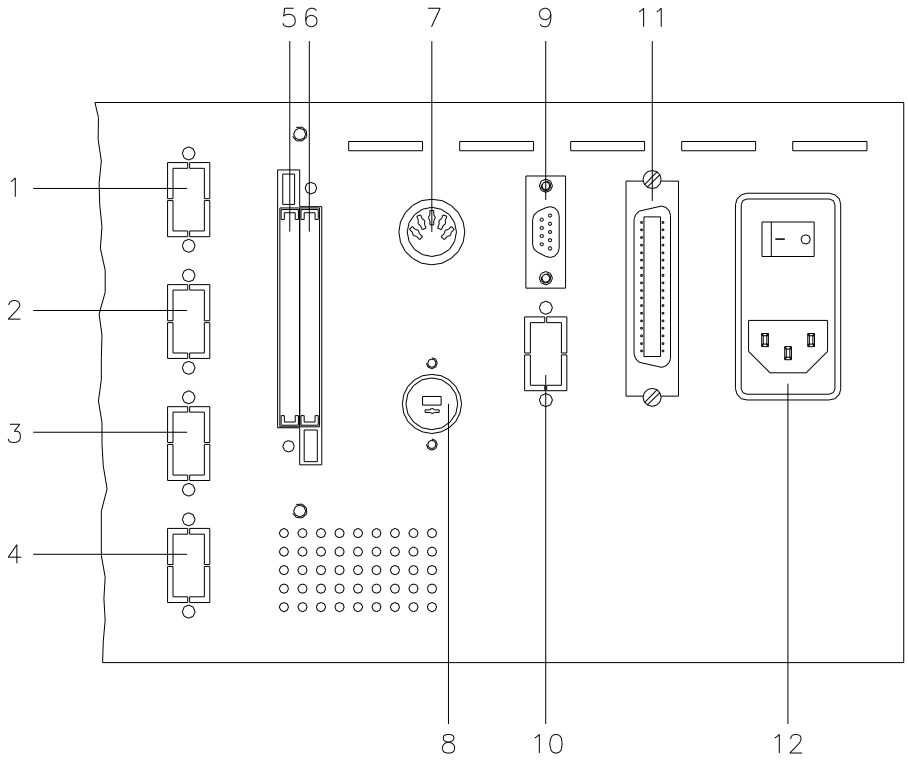
1.3.1. Bridge plan

Printhead	Version	Article No.	Machine	Jumper position JP15	Specials
KCE-53 (12 Dot) KCE-107 (12 Dot) KCE-128 (12 Dot) KCE-150 (12 Dot)	V5a	82.20.035	V55	a	Optimized timing but lower pressure

Option	Jumper JP11	Jumper JP14	Jumper JP15	Jumper JP16	Jumper JP17 (only 70.20.052 and 70.20.053
Default	b	a	s. o.	-	b
Hotstart	a	b	s. o.	-	b
RISC	a	a	s. o.	-	b
Initialisation CPU via Eprom	a	a	s. o.	-	a

1.4. Component parts of power supply

1.5. Connector assignment rear panel



1 = external input I

2 = external output I

3 = external input II

4 = external output II

5 = Memory-Card slot A

6 = Memory-Card slot B

7 = connection for PC-keyboard

8 = connection for rewinding unit
Attention:
only suitable for PR 45, not for PR 52 !

9 = serial interface RS 232

10 = connection for serial interface RS 422 / RS 485 or second RS 232

11 = Centronics interface

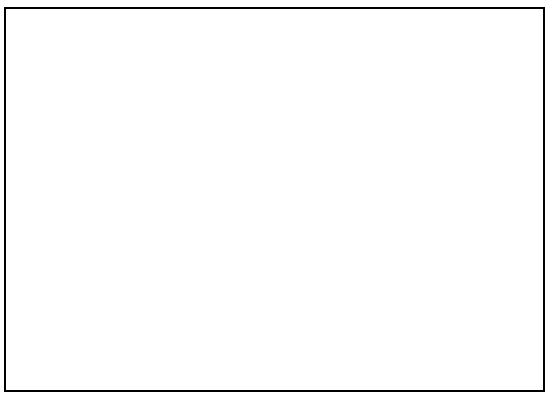
12 = power supply with ON/OFF switch

1.6. Changing of fuses

1.6.1. Primary fuse

The primary fuse is in the power line filter block and accessible from outside.
After plugging out the cover can be removed. There behind you will find the fuse-switch, which has to be pulled out to change the fuse.

optimo rear panel:



power line filter block

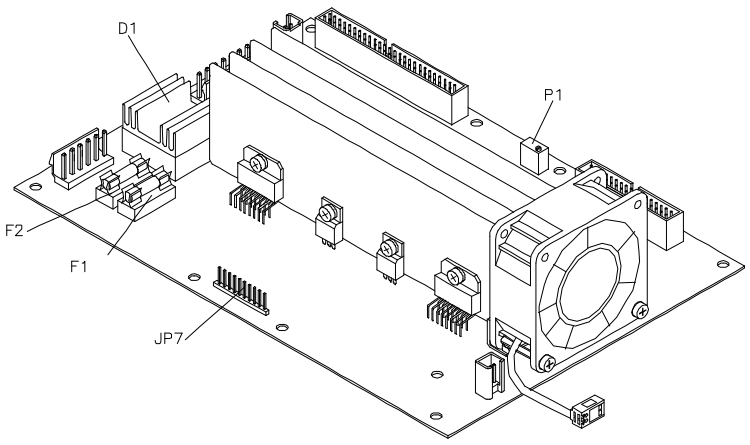
F3: fine-wire fuse T 3,15A

1.6.2. Secondary fuse

Attention: The machine should only be opened by competent staff.
Plug out before removing the covers.

After removing the covers the CPU plate is visible. Underneath you will find the power supply board with 2 secondary fuses.

F1: fine-wire fuse T 1,6 A	fuse for 5 V and 12 V supply
F2: fine-wire fuse T 10,0 A	fuse for motor voltage (33 V) and burning voltage (24 V) and cutter res. rewinding unit



D 1 rectifying unit
P 1 potentiometer
F 1 fine-wire fuse T 1,6 A
F 2 fine-wire fuse T 10,0 A

1.7. Check-points

1.7.1. Voltage supply power board

check-point		description	value
JP7	PIN 1	VCC	5V
JP7	PIN 2	12V	12V
JP7	PIN 3	24V	24V
JP7	PIN 4	VDK	24V
JP7	PIN 5	VIN	~ 33V
JP7	PIN 6-10	GND	0V
JP10	PIN 25	SUPPLY 1	~ 19,8V

1.7.2. Voltage supply CPU

check-point		description	value
ST5	PIN 2, 33, 34	GND	0V
ST5	PIN 3, 4	VCC	5V
ST5	PIN 26	12V	12V
ST5	PIN 25	SUPPLY	~ 19,8V

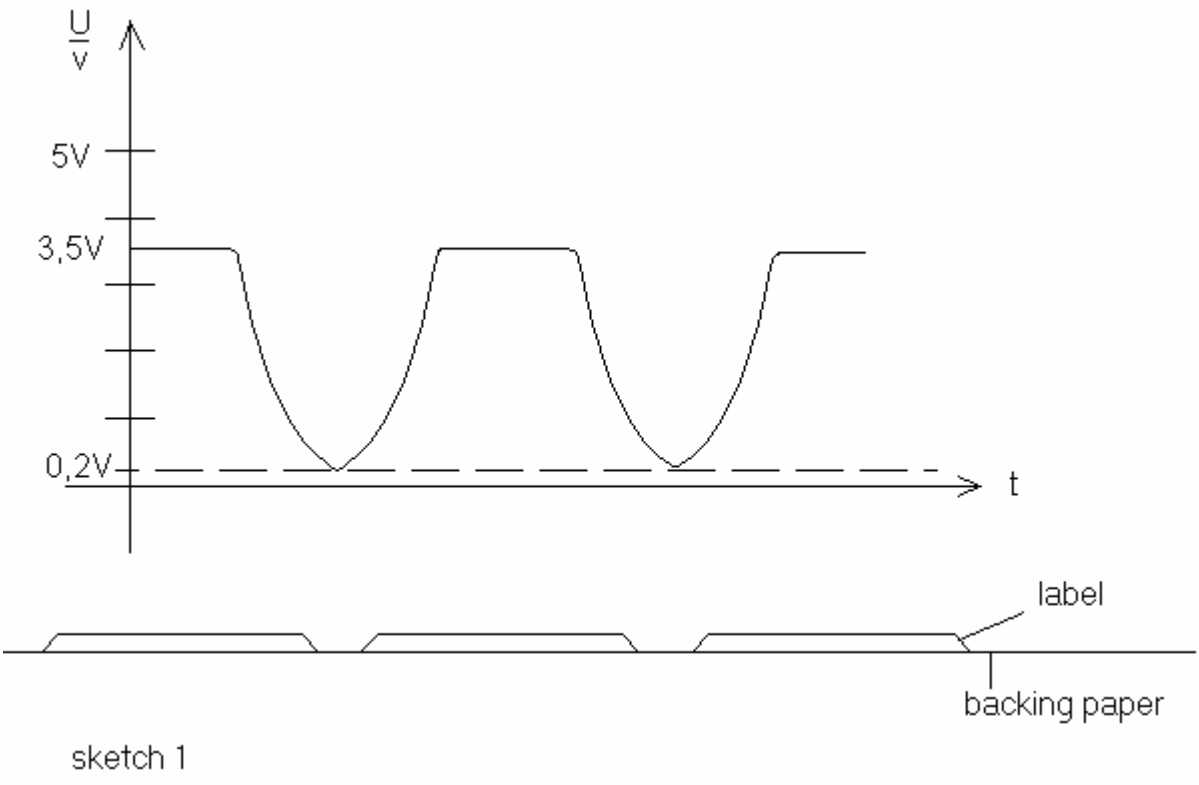
1.7.3. Photocells

Label photocell transmission

JP9:	PIN 1	VCC/DL	~1,2V
	PIN 2	INPUT/DL	see below
	PIN 3	GND/DL	0V

Depending on the transparency of the label res. backing paper the voltage at the input of the AD converter is changing.

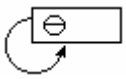
Sketch 1 shows a typical voltage wave form at "INPUT/DL", measurable at ST5 PIN 5 (CPU).



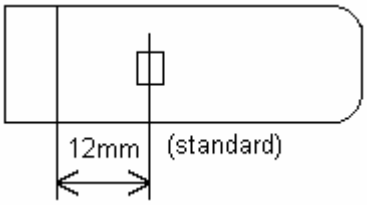
sketch 1

In case the adjusted value of the sending current of the photocell is insufficient, e.g. when using extremely thick or thin backing paper, it can be adjusted by changing P1 (power unit plate).

Rotation to the right adjustment for thick backing paper

Rotation to the left  adjustment for thin backing paper

The "INPUT/DL" level can be displayed in menu item "Service functions" (label parameter) under "LS: x,x".

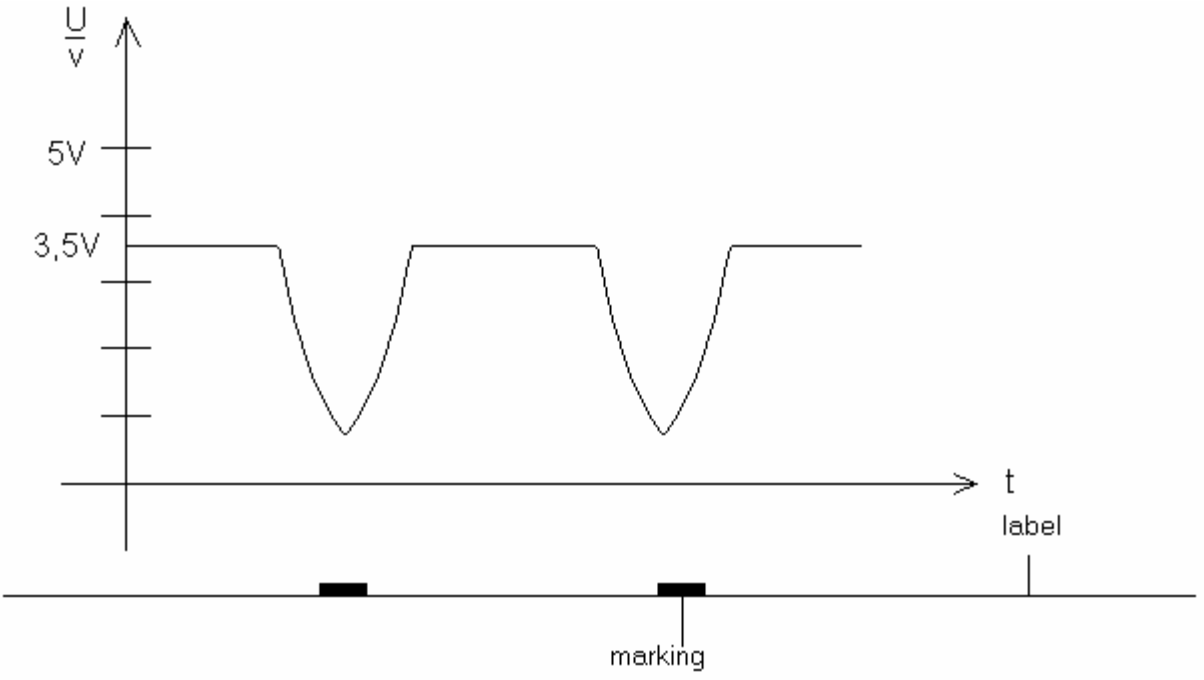


measurement of photocell

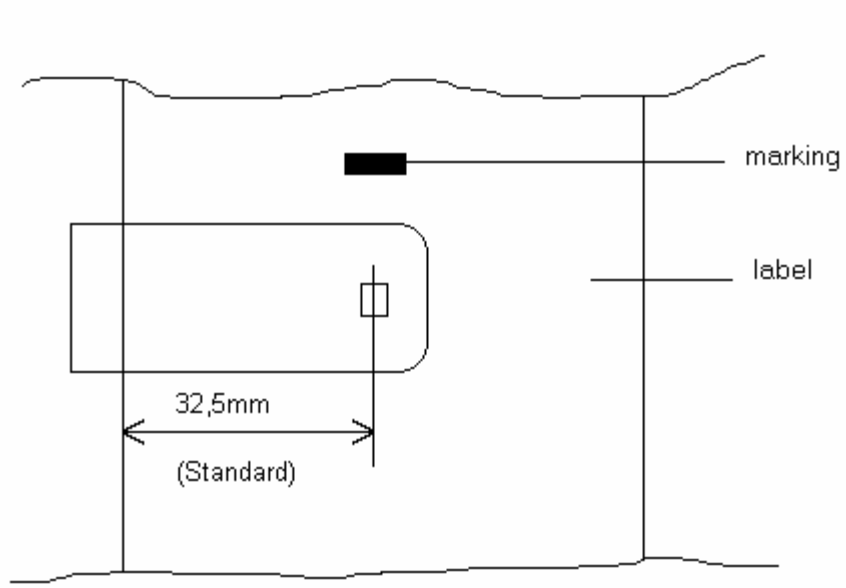
Label photocell reflexion

JP9:	PIN 4	VCC/RF	5V
	PIN 5	INPUT/RF	see sketch
	PIN 6	PULL-UP/RF	~ 2V
	PIN 7	GND/RF	0V

The voltage wave form at "INPUT/RF" is similar to the one described under A and is measurable at ST5 PIN 6 on the CPU.



It has to be considered that the marking for the reflexion photocell must be in a distance of 32,5 mm to the interior rim, so that the photocell recognizes the marking.

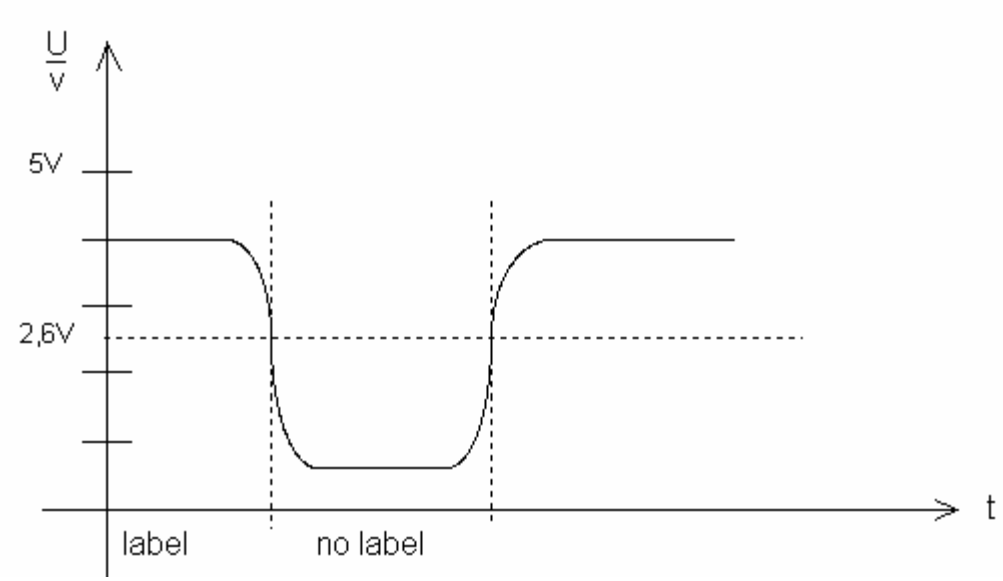


The "INPUT/RF" level can be displayed in menu item "Service functions" (label parameter) under LS: x,x. The marking should have a size of at least 7 mm x 3 mm or bigger.

Dispensing photocell

JP9:	PIN 8	VCC/SP	5V
	PIN 9	INPUT/SP	see sketch
	PIN 10	PULL-UP/SP	~ 1,2V
	PIN 11	GND/SP	0V

The typical voltage wave form at "INPUT/SP" (measurable at ST5 PIN 9) is shown in sketch 3.



As standard a level of 2,5 V is adjusted. If a label is under the dispensing photocell, the level at "INPUT/SP" must be higher than 2,5 V. If the label is removed, the voltage must lower under 2,5 V.

In some cases it is necessary to change the level of the dispensing photocell. This can be done in menu item "Printer initialisation - LS switching level".

The "INPUT/SP" level can be displayed in the menu item "Service functions" (label parameter) under CP: x, x.

Ribbon check

JP9:	PIN 12	VCC/TCR	5V
	PIN 13	IN/TCR	High res. Low
	PIN 14	PULL-UP/TCR	~ 1,2V
	PIN 15	GND/TCR	0V

The photocell "Ribbon check" checks whether the ribbon is moving. By that alterate high and low signals are measurable at "IN/TCR", which should have a ratio as much as possible of 1:1.

The "IN/TCR" level can be displayed in menu item "Service functions" (label parameter) under RCR and is measurable at ST5 PIN 8 on the CPU.

Photocell printhead open

JP9:	PIN 26	VCC/ABKL	5V
	PIN 27	IN/ABKL	High res. Low (measurable at ST5 PIN 10 CPU)
	PIN 28	PULL/AB	~ 1,2V
	PIN 29	GND/ABKL	0V

Photocell printhead closed

JP9:	PIN 30	VCC/ANKL	5V
	PIN 31	IN/ANKL	High res. Low (measurable at ST5 PIN 9 CPU)
	PIN 32	PULL/AN	~ 1,2V
	PIN 33	GND/ANKL	PIN 30

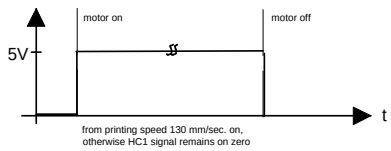
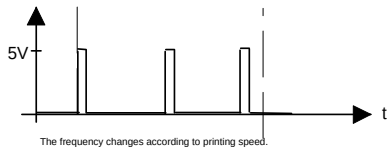
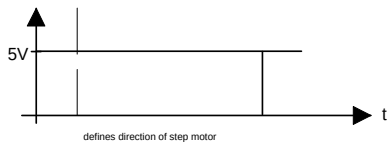
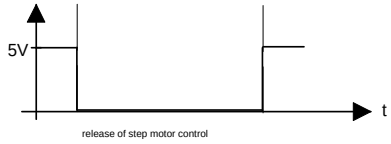
The activity of the photocells "E" and "F" is shown in menu item "Service functions" (label parameter) under "DW" res. "UP".

1.7.4. Clock signals

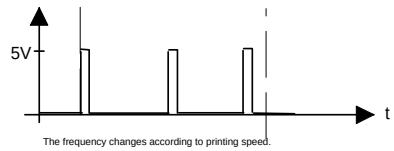
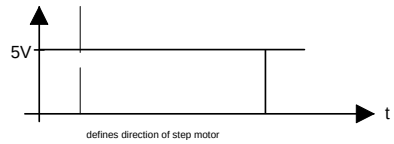
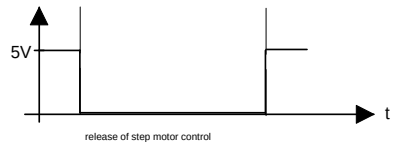
check-point		description		value
U1	PIN 11	CLK	CPU	25 res. 32 MHz
	PIN 12	CLK	CPU	
U30	PIN 15	RESET		0V
	PIN 16	RESET		~ 5V
U1	PIN 24	NMI		0V

1.7.5. Motor signals

Motor for paper feed

check-point (CPU)		check-point (power supply)		description	value
ST5	PIN16	JP10	PIN16	HC1	
	PIN17		PIN17	CLK1	
	PIN18		PIN18	DIR1	
	PIN19		PIN19	ENABLE1	

Motor for closing of printhead

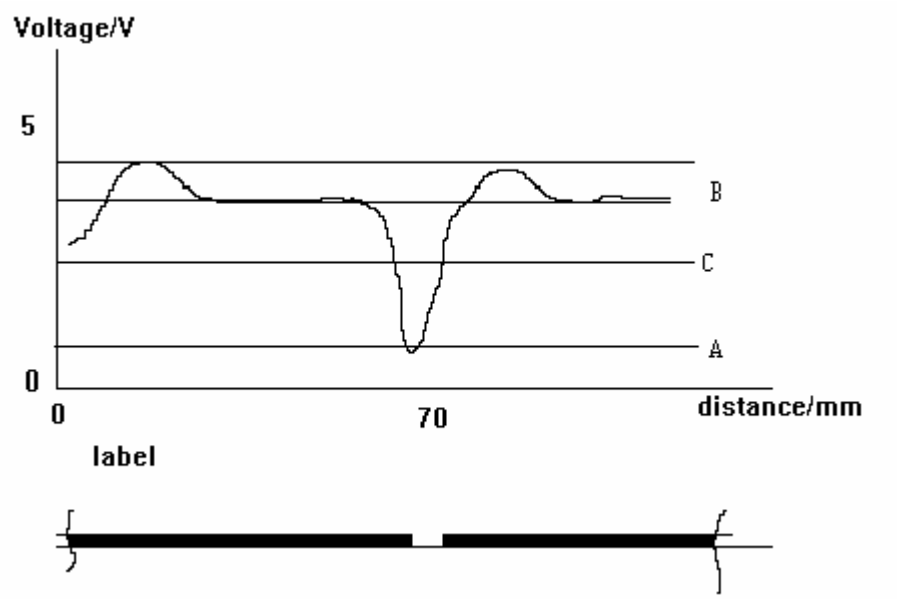
check-point (CPU)		check-point (power supply)		description	value
ST5	PIN20	JP10	PIN20	HC2	5 V
	PIN21		PIN21	CLK2	
	PIN22		PIN22	DIR2	
	PIN23		PIN23	ENABLE2	

1.8. Service monitor

1.8.1. Valuation of label parameters

In function menu "Service functions" you will find the service monitor, by which the photocells can be checked res. adjusted.
When measuring the labels the values will be displayed in the first line, thereby the following measured voltages are shown:

A: absolute minimum (measured on backing-paper)
B: smallest maximum (measured on label)
C: upper/lower switching level



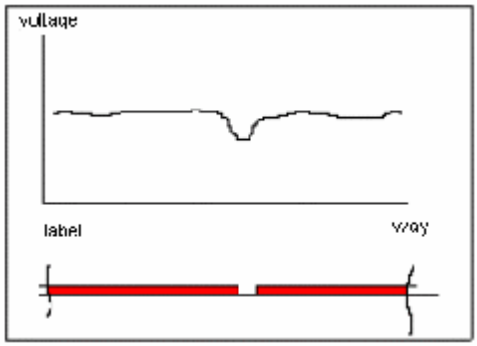
The sketch illustrates the voltage wave form of the label photocell while measuring the label.
The difference between "A" and "B" should be at least 1,5 V.

1.8.2. Error message: label error

Possible reasons of the error message "Label error" are the following:

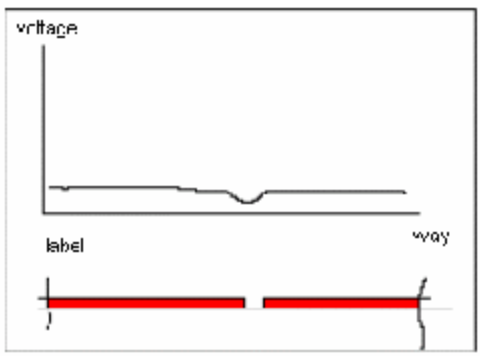
Too thick res. opaque backing paper

In this case the value of A will be too high. This means that the printer cannot distinguish between label and backing paper.



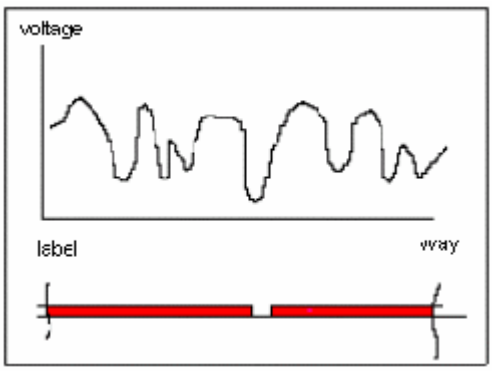
Very thin label material

In this case the value of B is too low, so that the printer cannot distinguish between backing paper and label.



Pre-printed label with strong differences in contrast

Pre-printed labels are a particular problem. Here the fluctuations of voltage on the label while measuring are very high. In this case the value of B will be very small. In case the difference between B and A is too small, the printer is not able to measure the label.



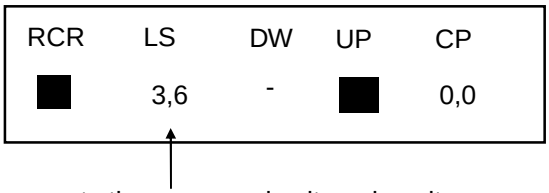
1.8.3. Error elimination

In case the photocell had already been adjusted so that the difference between A and B has received the highest possible value (as described in chapter "1.7.3. Photocells") the "sensitivity of the label photocell" can be adjusted.

1.8.4. Monitor

After activating the key again in menu "Parameter of label photocell" the photocell monitor will be activated.

On the display of the printer the following appears:



The digit represents the measured voltage in volts.

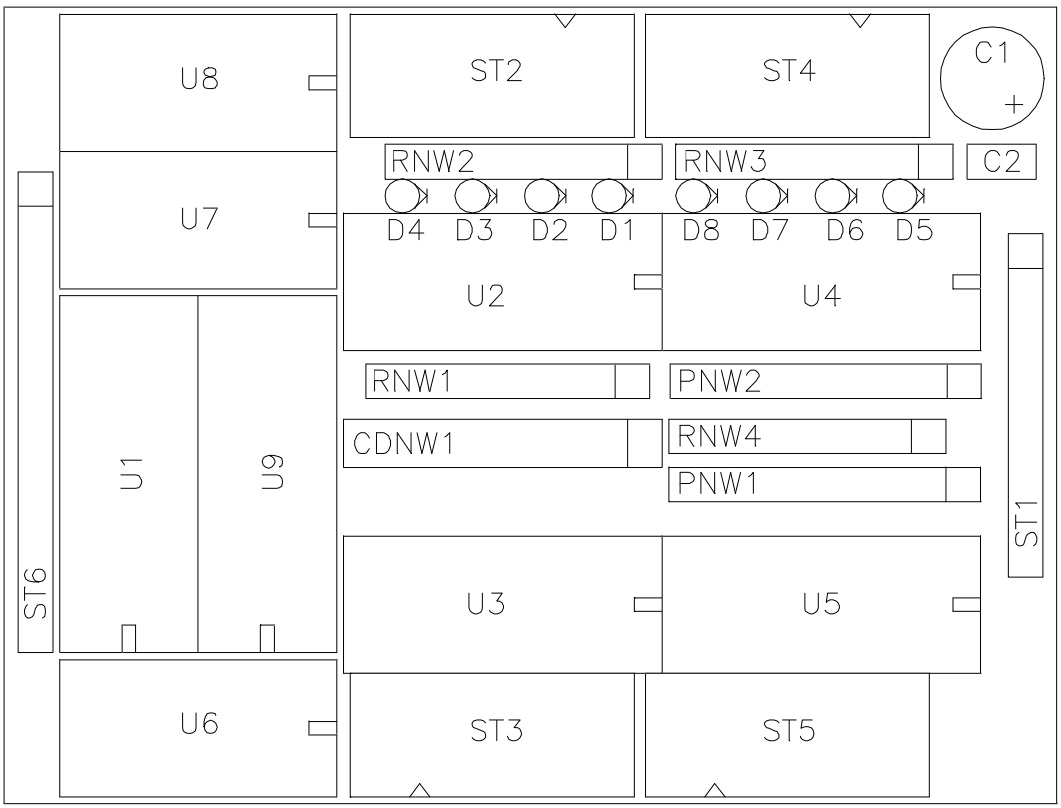
The monitor serves to check the label photocell to its function. As well it is possible to move the label manually under the photocell to get an idea of the voltage wave form and to be able to judge whether the label can be measured.

The difference of backing paper and label should be higher than 1,5 V.

2. Options

2.1. External inputs / outputs

2.1.1. Component parts external I/O's



2.1.2. Installation external I/O's

▷ Connect circuit board with components to the CPU.

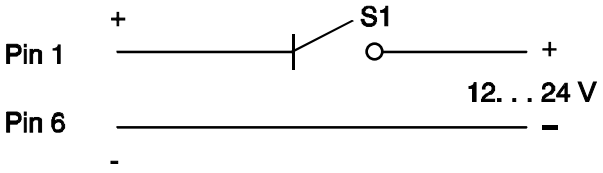
▷ Mount the connecting cable at the rear panel and connect it to the circuit board
(position of connectors on rear panel, see chapter "1.5. Connector assignment rear panel").

A = dispense inputs
B = dispense outputs

2.1.3. PIN assignment of DSUB connections

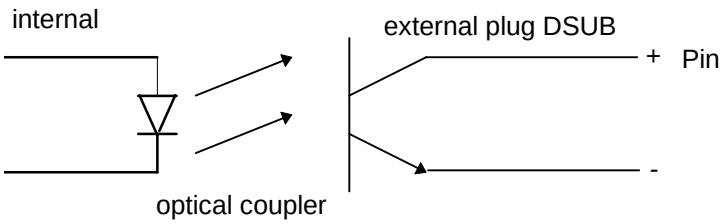
a) Inputs (9-pin DSUB plug)

Pin		description of signal
1	+	INPUT 1 (5)
6	-	
7	+	INPUT 2 (6)
2	-	
8	+	INPUT 3 (7)
9	-	
4	+	INPUT 4 (8)
3	-	



b) Outputs (9-pin DSUB receptacle)

Pin		description of signal
9	+	OUTPUT 1 (5)
5	-	
8	+	OUTPUT 2 (6)
7	-	
6	+	OUTPUT 3 (7)
2	-	
4	+	OUTPUT 4 (8)
3	-	

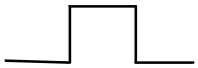
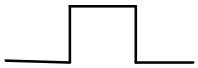
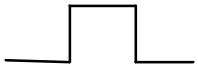
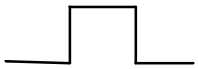
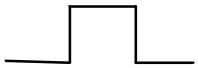
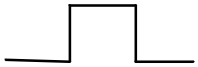
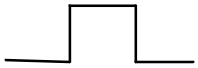
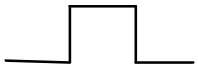
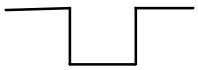
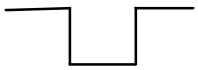
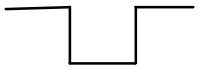
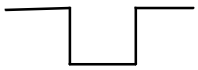
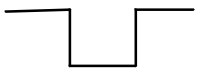
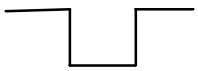
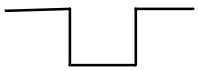
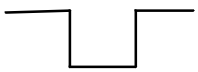


The in- and outputs are galvanic separated and have to be fed by external power supplies.
In function menu "Service functions" the in-/outputs can be checked.

```
IN-12345678  OUT-12345678
   ----------      ----------
```

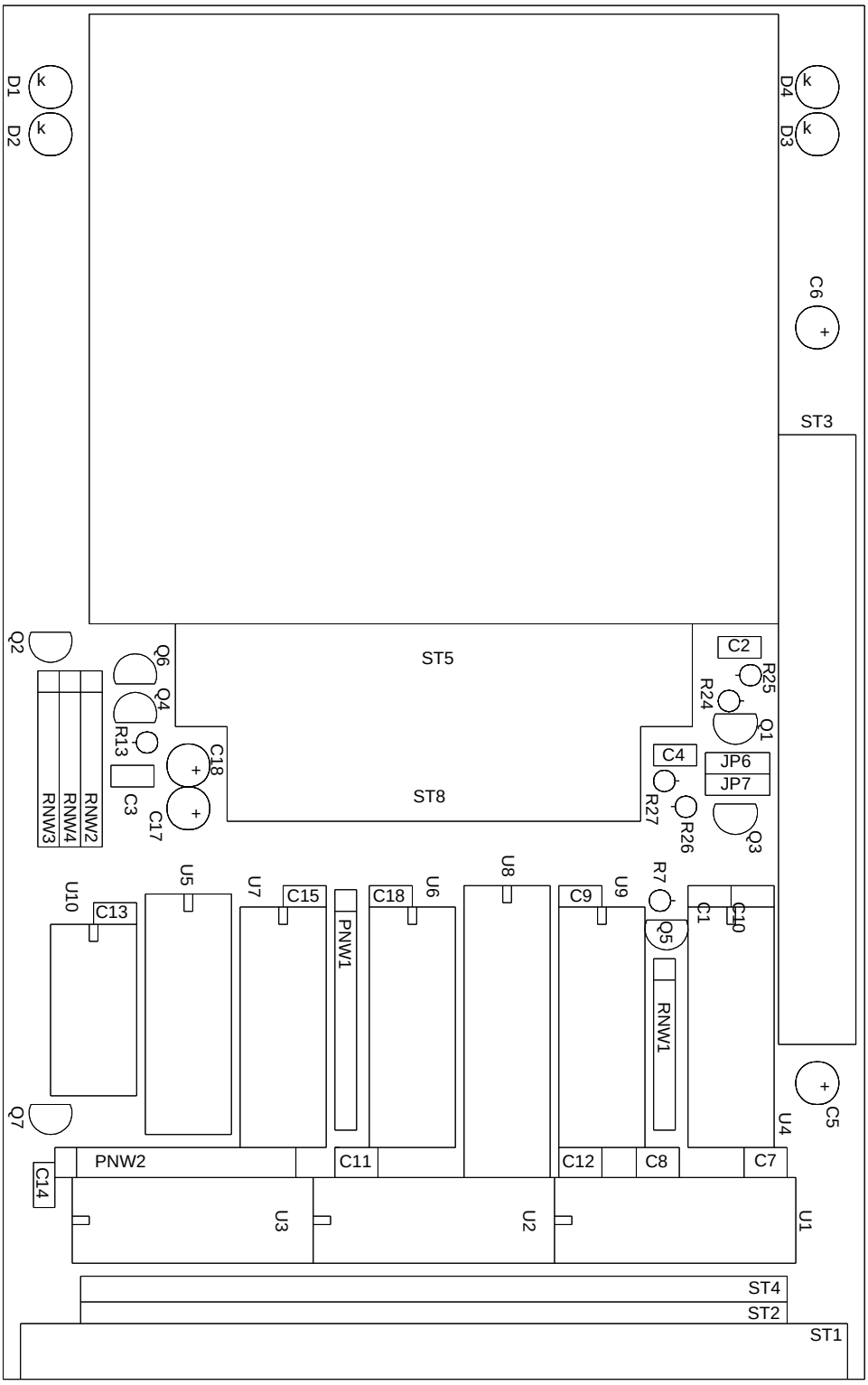
In case an input is activated this will be shown in the display. If an output is to be activated this can be done by pressing the key of the desired output (e.g. activation of output 3, press key 3).
The output is deactivated by pressing the key again.

2.1.4. Check-points

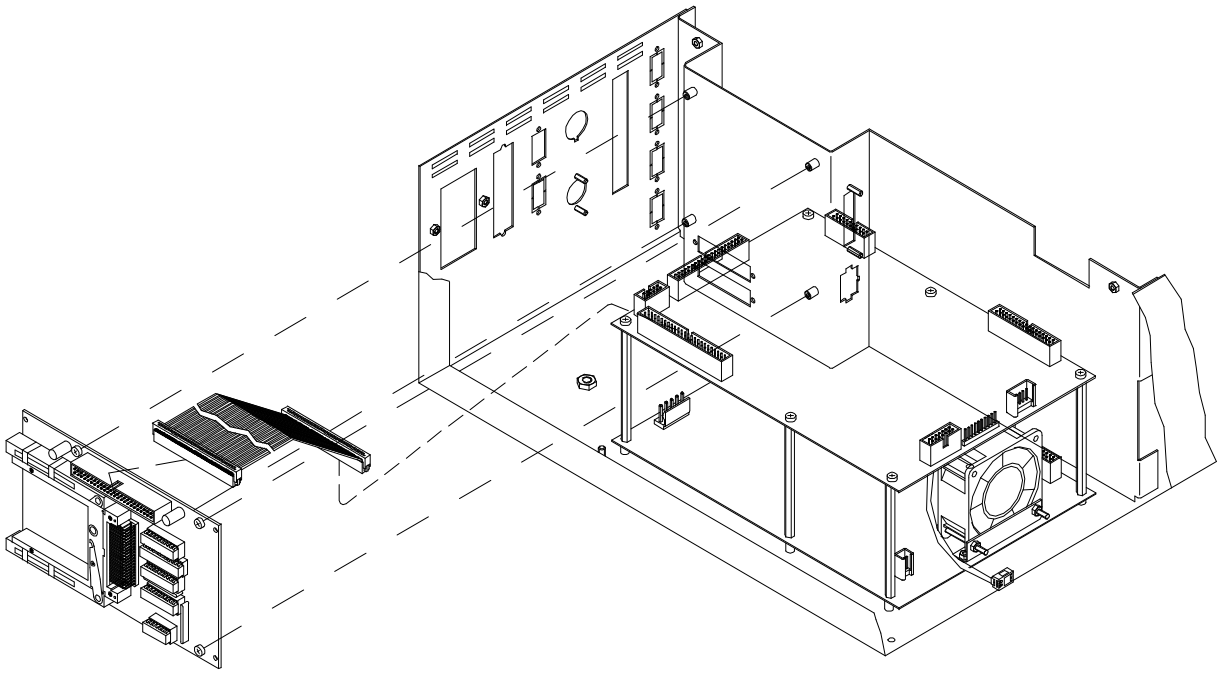
check-point		description	value
4 x IN (1 - 4)		ext. input impulse	
	PIN2	INPUT 1	
	PIN4	INPUT 2	
	PIN6	INPUT 3	
	PIN8	INPUT 4	
4 x IN (5 - 8)			
U6	PIN10	INPUT 5	
U7	PIN8	INPUT 6	
	PIN10	INPUT 7	
	PIN12	INPUT 8	
4 x OUT (1 - 4)			
U3	PIN2	OUTPUT 1	
	PIN3	OUTPUT 2	
	PIN6	OUTPUT 3	
	PIN7	OUTPUT 4	
4 x OUT (5 - 8)			
U5	PIN7	OUTPUT 5	
	PIN2	OUTPUT 6	
	PIN3	OUTPUT 7	
	PIN6	OUTPUT 8	

2.2. PC-Card

2.2.1. Component parts PC-Card



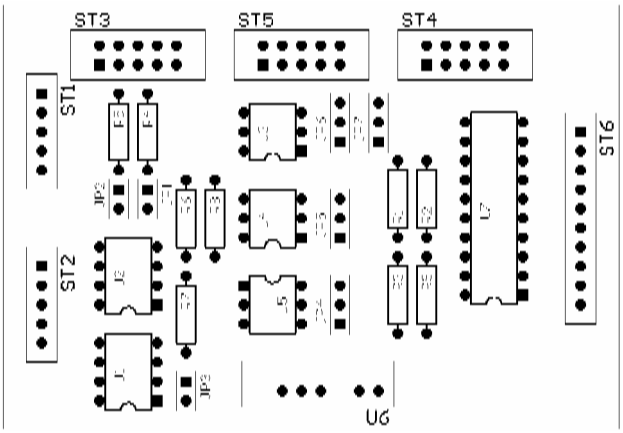
2.2.2. Installation PC-Card



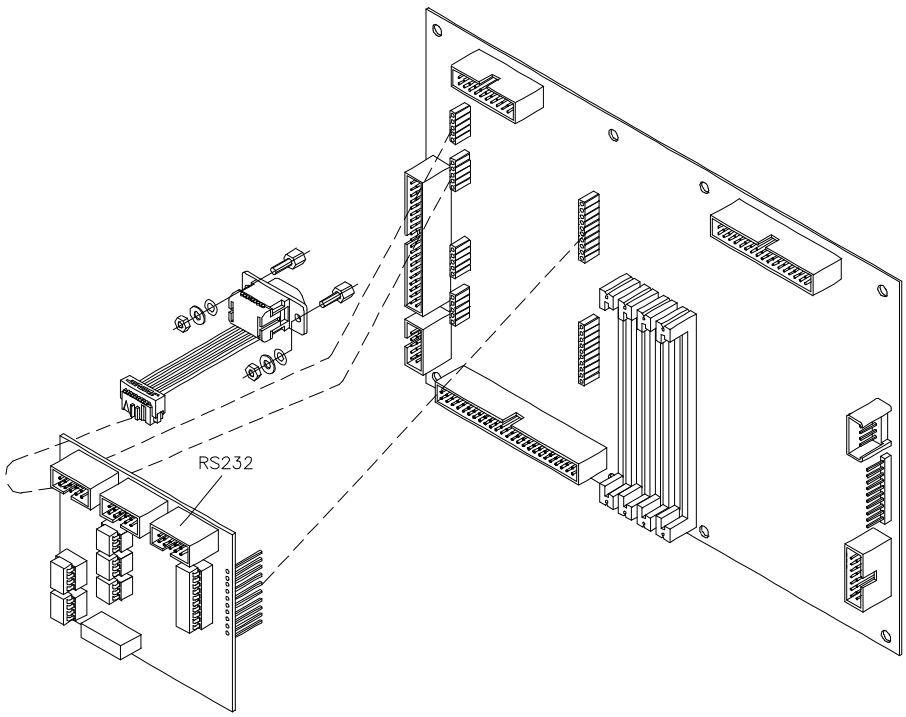
- ▷ Switch off the printer.
- ▷ Open cut-out of rear panel for PC-Card board.
- ▷ Install PC-Card board (see sketch) and insert connecting cable.

2.3. RS 485

2.3.1. Component parts RS 485



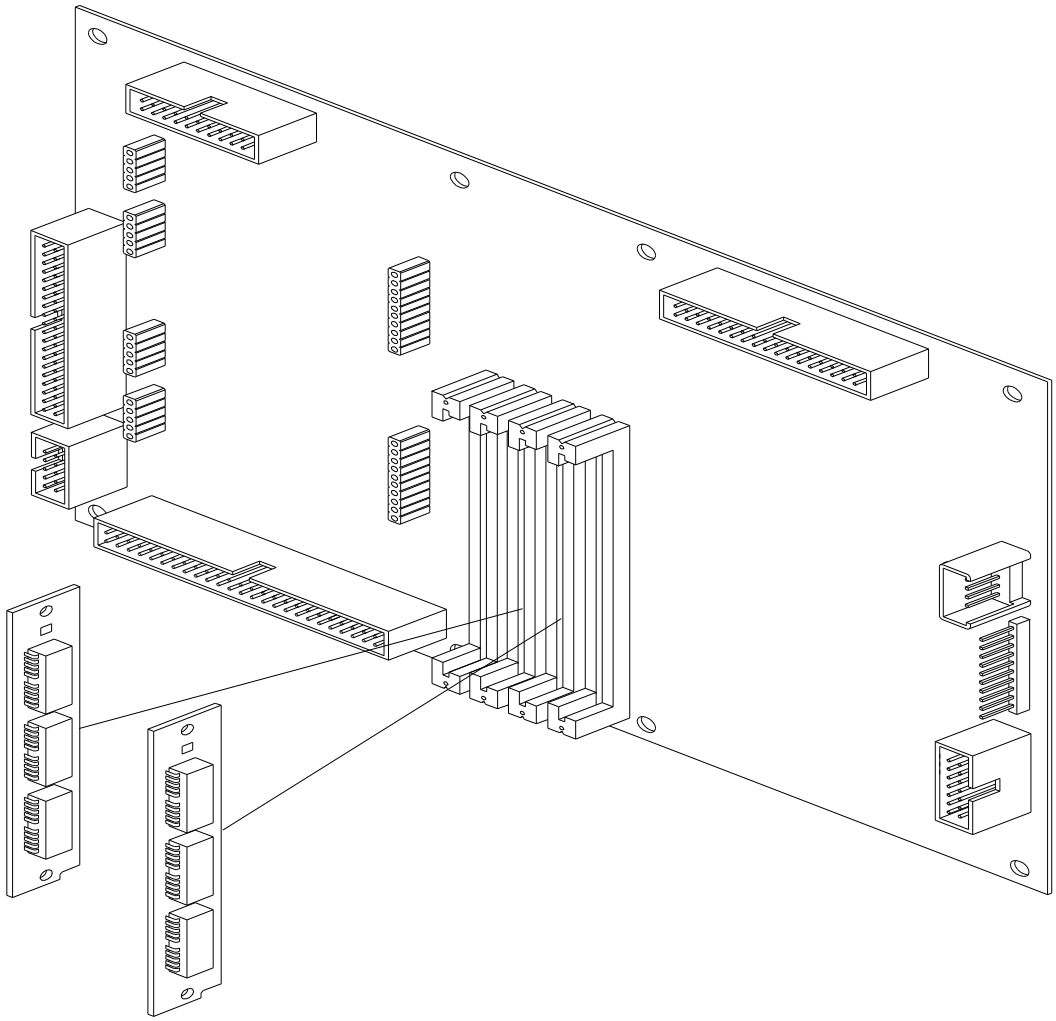
2.3.2. Installation RS 485



▹ Connect circuit board with components on CPU (see sketch above).

▹ Screw connecting cable to rear panel pos. 10 and connect it to circuit board
(position of connecting plug on rear panel see chapter "1.5. Connector assignment rear panel").

2.4. Extension of RAM

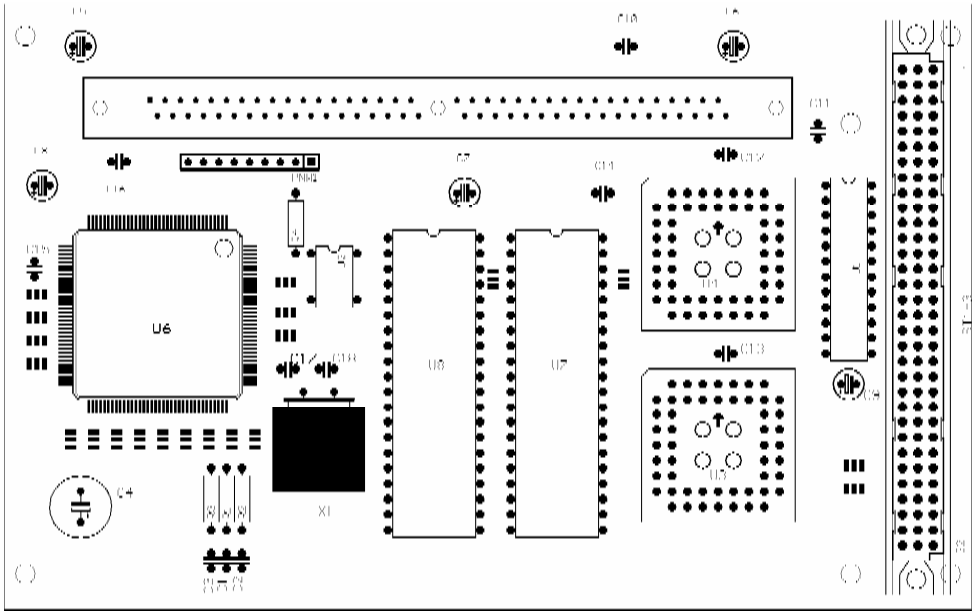


Installation:

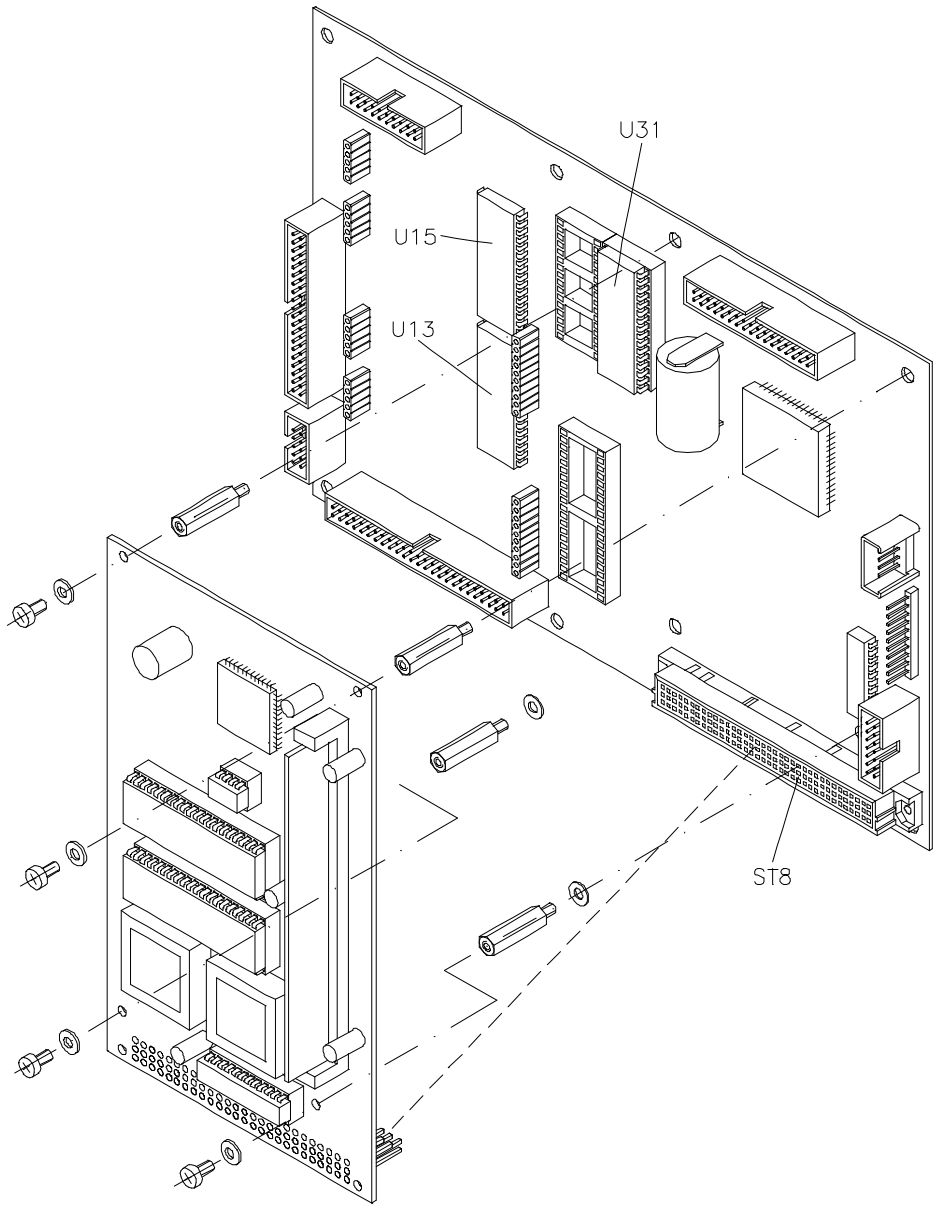
- ▷ Switch off the printer.
- ▷ Insert SIMM modules into socket.
- ▷ The modules always have to be installed in pairs, either in the two inner on the two outer plugging positions.

2.5. Extension of RISC

2.5.1. Component parts RISC



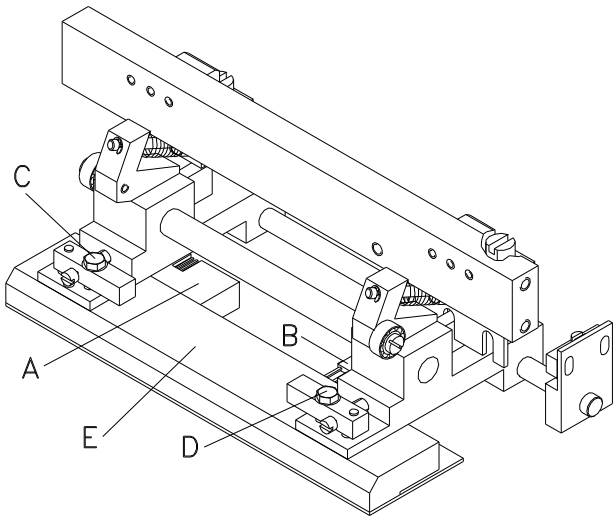
2.6. Installation RISC



- ▷ Switch off the printer.
- ▷ Remove components U15 and U13.
- ▷ The font Eprom U31 may as well be removed as the RISC processor disposes of an own font Eprom.
- ▷ Loosen mounting screws at the board and screw in spacers.
- ▷ Put RISC board into socket ST8 and fix it with mounting screws.
- ▷ Switch on the printer.
- ▷ Besides the printer type the display additionally shows the identification '++' for the RISC processor.

3. Mechanics

3.1. Exchange of printhead



Attention: For exchange of printhead the ESD regulations have to be observed!

- ▷ Switch off the printer and plug it out.
- ▷ Open up print module.
- ▷ Remove printhead cable (A, B) with plugs.
- ▷ Remove the screws (C, D) by means of an allen key 5,5 mm.
- ▷ Take off the printhead (E).

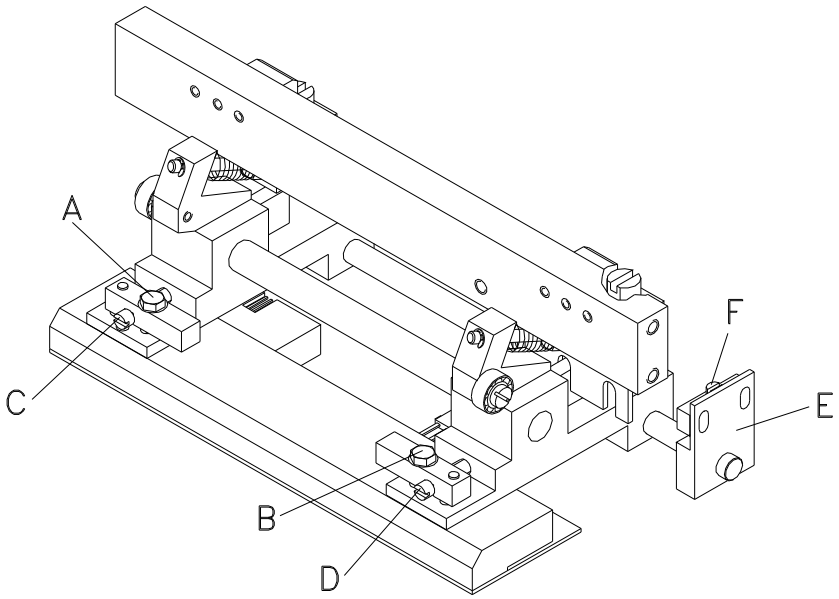
Installation:

- ▷ Installation of the new printhead and the other components in opposite order.
- ▷ Switch on the print unit.
- ▷ In function menu "Service Functions" menu item "Heater Resistance" enter the resistance value of the new printhead. You will find this value on the name plate of the printhead (R = XXXX Ω).
- ▷ Test the position of the printhead by making a test print. In case the test print does not come up to your satisfaction, the printhead has to be adjusted!

Attention: Do not touch the contacts of the printhead!

3.2. Adjustment of printhead

For the adjustment of parallelity and pressure the print module has to be taken off the case. Remove the screws ant the chassis base. It is recommended to connect the print module by means of an extension cable (in case of availability).



3.2.1. Parallelity

- ▹ Loosen screws (A, B) approx ½ turn with an allen key 5,5 mm.
- ▹ Adjust parallelity by the screws (C, D). If you turn in clockwise direction the printhead will move backwards, if you turn against clockwise direction it will move forward.
- ▹ Depending on the print quality of the test print adjust more until the print quality is correct.
- ▹ Fasten the 4 screws (A, B) again.
- ▹ Start print order with approx. 5 - 10 labels and check the correct, wrinkle free ribbon. If the ribbon shows wrinkles check the parallelity once again.

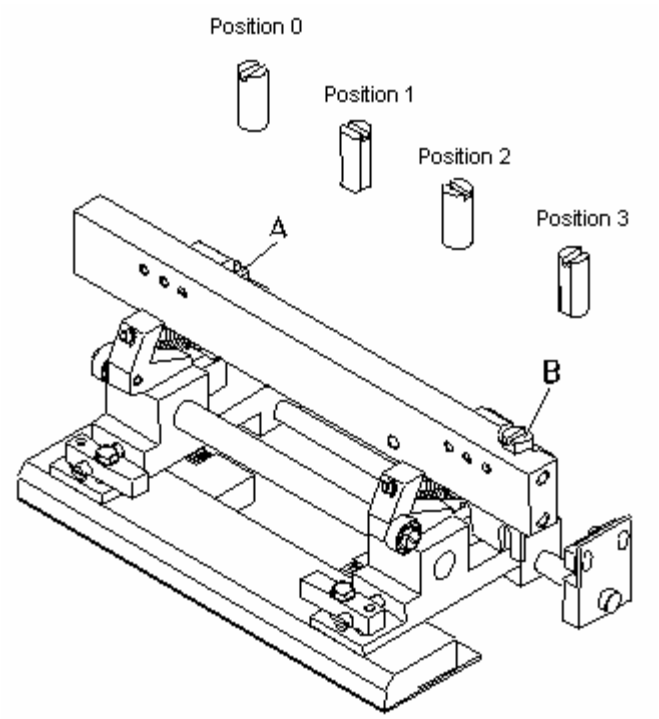
3.2.2. Pressure balance right/left

In case of a non equal strong pressure after adjusting the parallelity for the complete printhead width it is possible to arrange the balance by means of an adjusting unit (E) as follows:

- ▷ Turn the adjusting screw (F) in clockwise direction – for a stronger pressure at the right side.
- ▷ Turn the adjusting screw (F) against clockwise direction – for a weaker pressure the right side.

3.2.3. Pressure

Please avoid the increase of printhead pressure as this results in damages of printhead res. reduces its life.
The pressure is adjusted directly at works according to the specification of printhead.



By means of the adjusting screws (A, B) it is possible to adjust the pressure of printhead in 4 positions. In case no screwdriver is available the adjusting screws can also be moved with a coin. Important for recognition of the position is the plate fixed at the adjusting screw.
The following pressure positions are possible:

Position 0 = weak pressure (3,6 kg) according to the printhead specification from works

Position 1 = slightly stronger pressure (4 kg); approx. 4 N higher than position 0

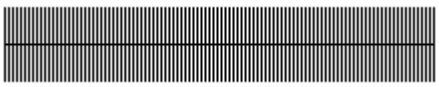
Position 2 = even stronger pressure (4,5 kg); approx. 9 N higher than position 0

Position 3 = strongest pressure (5 kg); approx. 14 N higher than position 0

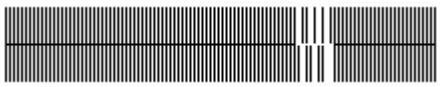
3.3. Cleaning of printhead and pressure roll

Principally it is advisable and necessary to clean the printhead in regular intervals depending on the printer's operating hours and its environment (e.g. dust etc.).
With a test print it can be easily found out whether the printhead is soiled or defective.

a) printhead is o.k.



b) printhead is defective/soiled



While cleaning the printhead the printer has to be switched off!

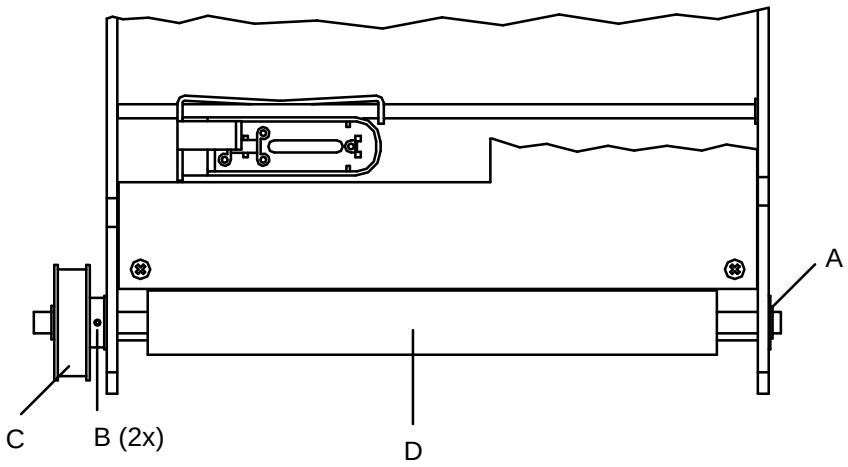
- ▷ Open up print module.
- ▷ The part to be cleaned is situated at the front edge of the printhead. Cleaning only with dry cleaning solvent. As expedient a close-woven cotton cloth is recommended. In case this procedure is not sufficient the printhead can be cleaned with a special cleaning foil (to be obtained from us under ref. Nr. 97.14.008).

Warning: The printhead is very sensitive, therefore scratching res. strong rubbing is absolutely to be avoided. Rough or hard subjects may not be used for cleaning!

Cleaning of pressure roll:

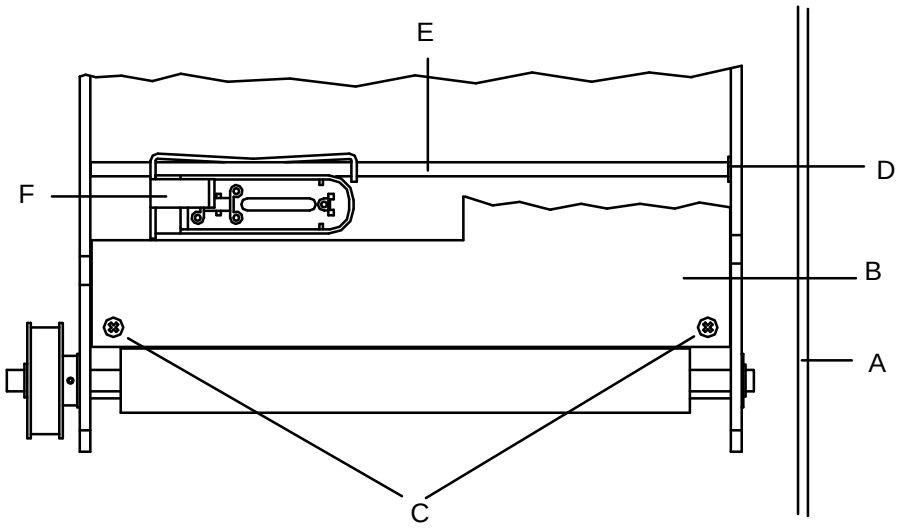
In certain intervals the pressure roll has to be cleaned with spirit (dust, soil etc.).

3.4. Exchange of lower pressure roll



- ▹ Remove print module from the case.
- ▹ Remove safety washer A.
- ▹ Loosen both hexsocket head screws B and remove driving gear C.
- ▹ Take off pressure roll D.
- ▹ Install new pressure roll in opposite order.

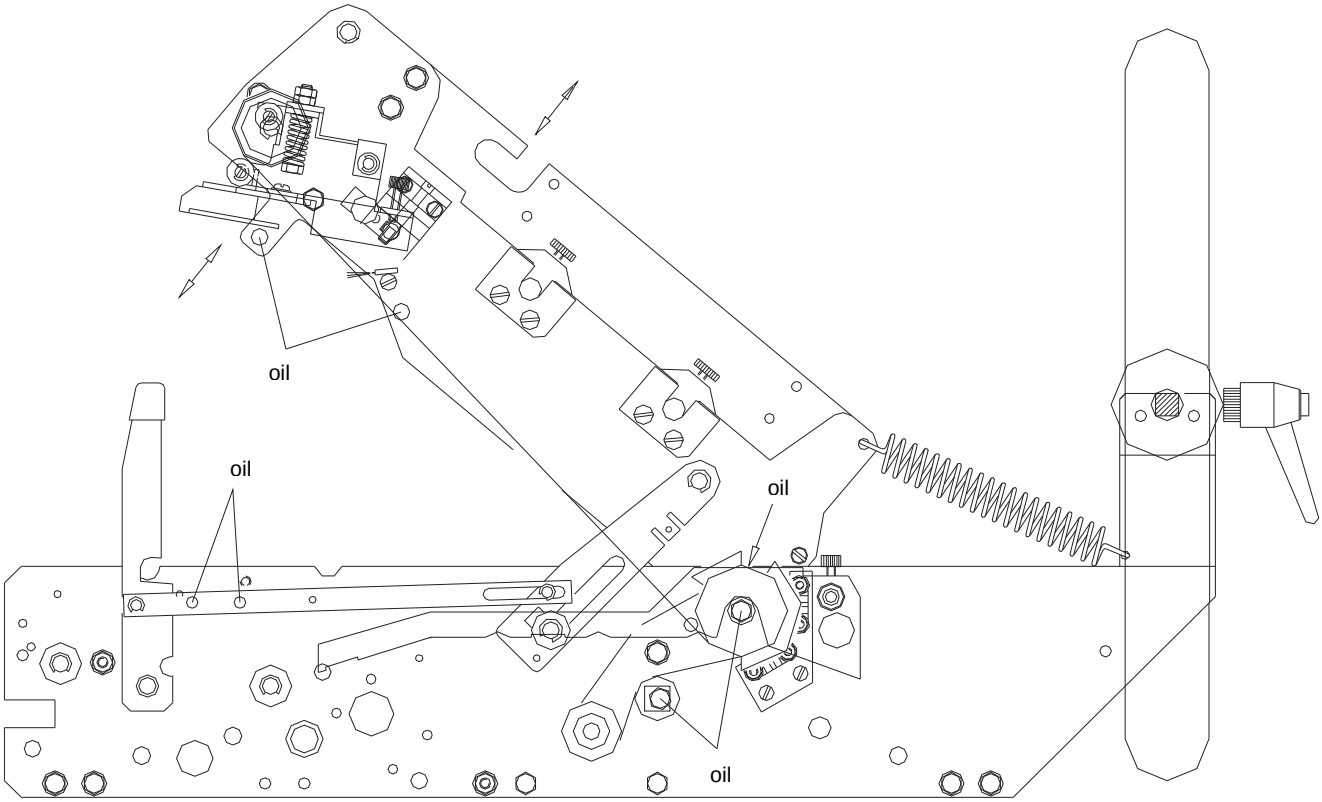
3.5. To clean / remove label photocell



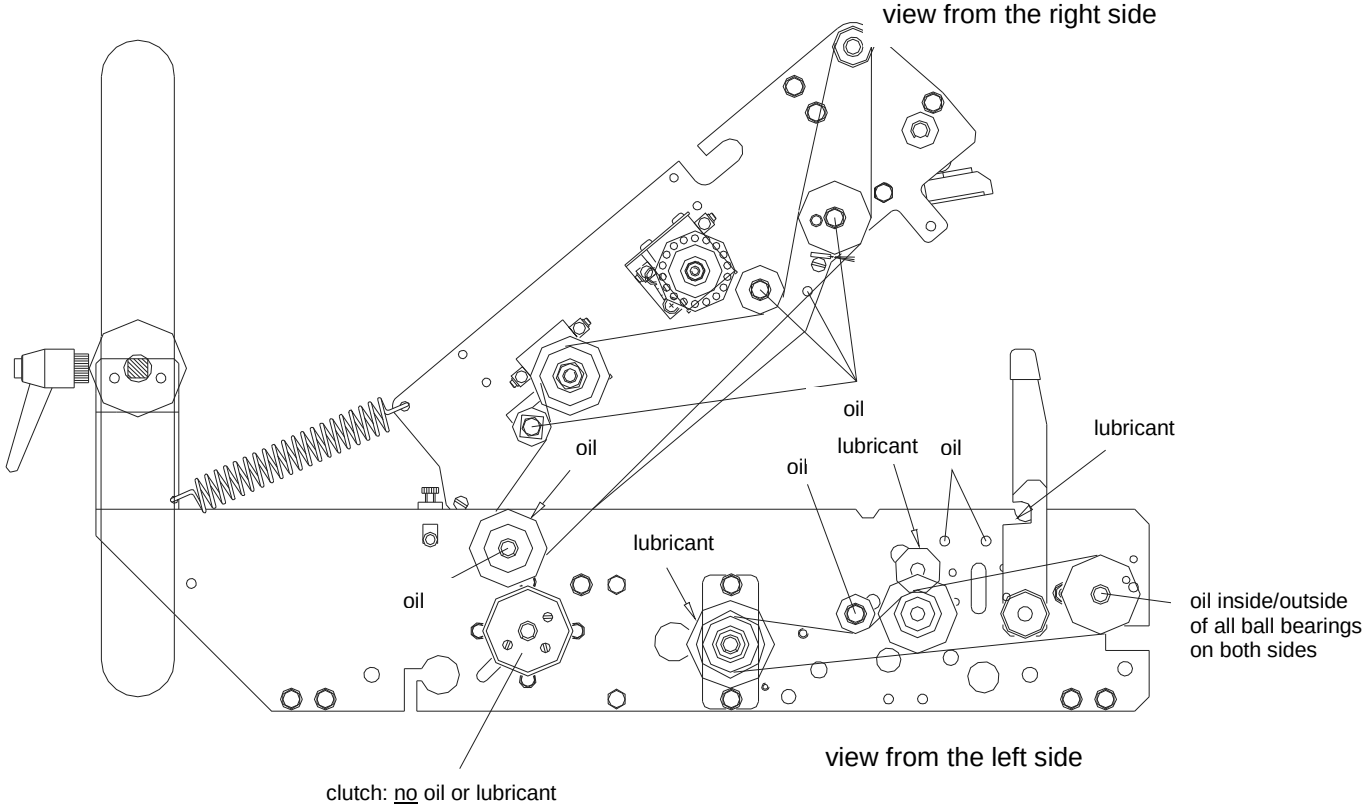
- ▷ Screw off side panel A of the case.
- ▷ Screw off cover sheet B by loosening screw C.
- ▷ Take off safety washer D and remove shaft E to the right.
- ▷ Photocell F can now be removed and opened if necessary (e.g. if a label is sticked to the photocell).
- ▷ Clean photocell with spirit.
- ▷ Installation in opposite order.

Note: To exchange the photocell, the connecting cables in the plug have to be unsolded (colour assignment for new photocell see chapter "1.1.3. Wiring diagram plug 1").

3.6. To oil and lubricate



view from the right side



view from the left side

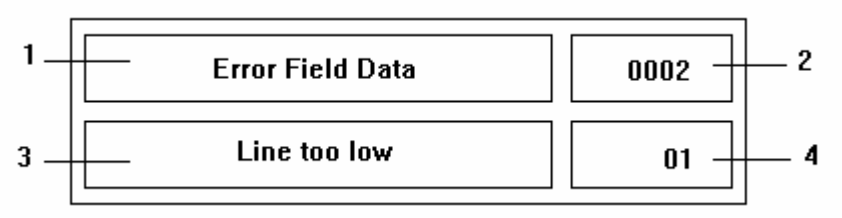
clutch: no oil or lubricant

4. Possible sources of error

4.1. Display

In case of error the following display will appear:

Example:



1	Error categories	
	unknown error label error system error data error ribbon error	error interface error field data error memory error parameter error print parameter
2	Number of error	
	The number of error is indicated (see table of errors chapter "4.2. Table of errors").	
3	Text	
	Specification of the error occured.	
4	Line number, MC-Slot	
	Indication where res. in which line the error occured.	

4.2. Table of errors

number of error	possible causes	how to solve the problem
1	line completely/partly projects the upper label rim	place the line in a lower position (Y↑) check rotation, font
2	line completely/partly projects the lower label rim	place the line in a higher position (Y↓) check rotation, font
3	line completely/partly projects the left label rim	move the line to the right (X↑) check rotation, font
4	line completely/partly projects the right label rim	move the line to the left (X↓) check rotation, font
5	one/more characters of the text is/are not included in the selected font	change text change font
6	one/more characters of the text is/are not included in the selected font	change text change font
7	impossible to match the text into the selected field	check field size
8	internal error	Please contact your distributor.
9	the selected type of text is not available	check type of text
10	the selected code is not available	check type of code
11	the selected position is not available	check position
12	the selected font is not available	check font
13	the font EPROM does not support the selected language	check language Please contact your distributor.
14	see error no. 5	
15	error in font EPROM	Please contact your distributor.
16	error in font EPROM	Please contact your distributor.
17	error in font EPROM	Please contact your distributor.
18	error in font EPROM	Please contact your distributor.

number of error	possible causes	how to solve the problem
19	when measuring label the difference between label and backing paper is too small	adjust label photocell (distributor) change sensitivity
20	when measuring no label found the selected label length is too high	remeasure check label length
21	while printing no marking/gap found	check label
22	while printing ribbon is empty defective ribbon photocell	change ribbon check ribbon photocell in menu service check ribbon sensitivity
23	loss of data at serial interface (RS 232)	check Baudrate check cables (on printer and PC)
24	parity error	check parity check Baudrate check cables (on printer and PC)
25	stopbit error	check stopbits check Baudrate check cables (on printer and PC)
26	received line number invalid with RS 232 / Centronics	check data sent connection PC - printer
27	invalid length of received mask statement	check data sent connection PC – printer
28	invalid mask statement	check data sent connection PC - printer
29	missing ETB	check data sent connection PC – printer
30	invalid length of received code statement	check data sent connection PC – printer
31	invalid length of received command statement	check data sent connection PC - printer

number of error	possible causes	how to solve the problem
32	illegal statement	check data sent connection PC – printer
33	entered/received check digit is faulty in check digit control	recalculate check digit check code data
34	selected SC code invalid with EAN/UPC	check SC code
35	entered number of characters invalid with EAN/UPC Code < 12; > 13	check number of characters
36	type of check digit not available with selected code	check digit control check type of code
37	not readable printer parameter	check serial EEPROM (service)
38	printer parameter cannot be stored	check serial EEPROM (service)
39	selected zooming factor invalid	check zooming factor
40	entered sign of offset invalid	check offset value
41	entered offset value invalid	check offset value
42	printhead temperature too high defective temperature sensor of printhead	contrast ↓ change printhead (service)
43	error cutter, paper jam	check label guiding check cutter
44	entered characters are not conform to the characters allowed by the application identifiers	check code data
45	application identifier not available with EAN 128	check code data
46	continuous mode selected, printer received a command statement via interface, where number of lines < 2. Label length is missing.	do not select continuous mode or transmit dummy line with Y-coordinates = label length (see interface manual)
47	connection CPU - Memory-Card interface has been interrupted Memory-Card interface defective	check connection CPU - Memory-Card interface check Memory-Card interface

number of error	possible causes	how to solve the problem
48	Memory-Card not or not correctly entered	enter Memory-Card
49	wrong type of Memory-Card entered (8/16 Bit)	check card type (has to be 16 Bit)
50	charge of battery / accumulators can cause loss of data on the Memory-Card	change battery (attention, loss of data!)
51	battery / accumulators empty	change battery (attention, loss of data!)
52	"Write-Protect"-switch on Memory-Card is on position "ON"	deactive write protection
53	Memory-Card not formatted	formate Memory-Card
54	no files on Memory-Card	
55	file does not exist on Memory-Card	search through the contents of the Memory-Card and select the desired file name check directory and device
56	invalid characters in the file name	check characters
57	max. storage space of Memory-Card is reached	use a new Memory-Card delete files on Memory-Card that are no longer needed
58	max. number of main directory entries is reached	at least one main directory entry has to be deleted, then create subdirectories
59	selected file includes no graphic dates	check file name
60	selected file includes no label dates	check file name
61	invalid directory name	check directory name
62	selected directory already exists	check directory name
63	you tried to delete the actual directory	change directory
64	directory to be deleted is not empty	first delete all files in the directory
65	selected subdirectory does not exist	check directory name

number of error	possible causes	how to solve the problem
66	RTC function has been selected, though no RTC is installed in the printer RTC defective	check selected function, add RTC ram exchange RTC ram
67	no print memory found	check memory standard on CPU board
68	max. storage space of Memory-Card is reached	delete files on Memory-Card that are no longer needed
69	internal error	Please contact your distributor.
70	wrong format entered for variable line	check format string
71	wrong format entered for date/time	check format string
72*		
73*		
74*		
75*		
76	different software standard of graphics processor / main processor	Please contact your distributor.
77	different software standard of graphics processor / main processor or hardware error	Please contact your distributor.
78	connected barcode scanner signals device error	check connection scanner / printer check scanner, possibly defective
79	bad print quality printhead completely soiled or defective printing speed too high	increase contrast clean printhead or exchange if necessary decrease printing speed
80	scanned character sequence is not identical with character sequence to be printed, due to possibly missing dots a false barcode was printed	exchange printhead
81	definition of counter variables invalid, entry of inadmissible characters as counter	check characters of counter in text statement check counting mode

* IDS error